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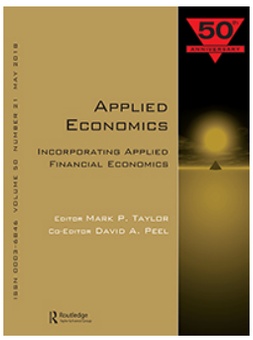

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Do microfinance institutions benefit from integrating financial and nonfinancial services?

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ABSTRACT

This article examines the impact of microfinance 'plus' (i.e. coordinated combination of financial and nonfinancial services) on the performance of microfinance institutions (MFIs). Using a global data set of MFIs in 77 countries, we find that the provision of nonfinancial services does not harm nor improve MFIs' financial sustainability and efficiency. The results however suggest that the provision of social services is associated with improved loan quality and greater depth of outreach.

KEYWORDS

Microfinance 'plus'; business development services; outreach; financial sustainability

JEL CLASSIFICATION

G21; O16; C23

I. Introduction

Microfinance aims at providing financial services to low-income households and microenterprises who have been excluded from traditional banking. The achievement of this goal has been universally recognized (Biosca, Lenton, and Mosley 2014; Balkenhol and Hudon 2011). Beside this primary social mission of financial inclusion, microfinance institutions (MFIs) also seek to remain financially sustainable. According to Morduch (1999), this is the 'win-win' solution of microfinance. Thus, MFIs are hybrid organization pursuing both social and financial objectives. Like banks MFIs should be profitable or at least break-even, and like social organizations MFIs should reach out to unbanked clients and enhance their welfare.

In the late 1970s and early 1980s, the provision of financial services to microentrepreneurs was often done alongside nonfinancial services (social and business development services) (Goldmark 2006). The social services focused on improving clients' welfare while the business development services were offered to teach the clients basic financial management principles. This was believed to enhance clients' business success and thereby improve MFI's loan quality. This belief was however not supported by early studies such as Kilby and D'Zmura (1985) and Boomgard (1989).

While some MFIs continue to deliver nonfinancial services in recent times, many others have phased out the practice since the late 1990s (Goldmark 2006). The focus on only financial services (minimalist model) could among other things be attributed to low impact of the training programs and pressure to commercialize microfinance. Often the training programs are counter-productive because they are either of low quality or do not meet the specific needs of the poor (Goldmark 2006; Yunus 2007).

Moreover, proponents of the minimalist approach argue that access to credit alone is enough for the poor to work themselves out of poverty. For instance, Dr Muhammad Yunus, a renowned pioneer of microfinance, states that 'rather than waste our time teaching them new skills, we try to make maximum use of their existing skills. Giving the poor access to credit allows them to immediately put into practice the skills they already know' (Yunus 2007, 225). Another argument for the minimalist approach is that, including 'plus' services will have a negative influence on MFIs' financial sustainability. This argument is related to the claimed trade-off between social mission and financial sustainability (Cull, Demirgüç-Kunt, and Morduch 2007; Cull, Demirgüç-Kunt, and

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Morduch 2011; Hermes, Lensink, and Meesters 2011). This can be described as a 'win-loss' situation for the clients and MFIs, respectively.

However, the minimalist approach has been reassessed (Lanao-Flores and Serres 2009) with an increasing conclusion that the 'microcredit, by itself, is usually not enough' (Reed 2011, 1). To this end, some MFIs today still adopt the credit-plus model (what we call microfinance 'plus') by bundling financial and nonfinancial services to clients. A typical proponent of this model is Freedom from Hunger, a US-based village banking organization. Proponents argue that, the credit-plus model maximizes MFIs' social impact (Dunford 2001).

About 27 per cent of MFIs in our sample adopt a 'plus' model while the remaining 73 per cent follow the minimalist approach. The fact that some MFIs are specialized while others are 'plus' providers offers an interesting research setting. Thus, what we set out to study in this article is to investigate whether the microfinance 'plus' model is more beneficial than the minimalist approach in terms of the achievement of MFIs' social and financial objectives. This has not been addressed in the academic literature to the best of our knowledge. Empirical literature on the impact of microfinance 'plus' in general is very limited (Biosca, Lenton, and Mosley 2014). In addition, we adopt several estimation methods to address potential endogeneity.

The relevance of this study is demonstrated by recent concerns that the client's impact of accessing stand-alone credit has been overstated (Angelucci, Karlan, and Zinman 2015; Banerjee et al. 2015). These studies imply that providing only microcredit as a solution to poverty is probably not adequate. According to Armendáriz and Szafarz (2011), poor households benefit from a combination of services, rather than the simple provision of credit. Similarly, Khandker (2005) argues that because poverty is multidimensional, poor people need access to a coordinated combination of both financial and nonfinancial services (e.g. business trainings) to overcome poverty. Such developmental services are crucial for making credit more productive and impactful for the clients.

The arguments for the importance of the microfinance 'plus' (maximalist) approach are further supported by several studies documenting improved clients' impact when accessing credit in combination with nonfinancial services or 'plus' services (Copestake, Bhalotra, and Johnson 2001; Dunford 2001; Halder 2003; Karlan and Valdivia 2011; McKernan 2002; Noponen and Kantor 2004; Smith 2002). A main problem with these studies, in addition to being case studies with relatively little external validity, is that they focus on the impact of microfinance 'plus' on clients, without considering the outcomes for the MFIs. In contrast, this article uses a global sample to investigate the potential influence of microfinance 'plus' on the MFIs' performance.

Since controversies persist between the minimalist and maximalist approaches (Bhatt and Tang 2001; Morduch 2000), it is the aim of this article to provide policymakers and practitioners with informed information as to whether the provision of 'plus' services influences the financial and social performance of MFIs. To achieve this aim, the article focuses on two main questions: (1) do MFIs that combine financial and nonfinancial services achieve better financial performance, in terms of financial sustainability, efficiency and portfolio quality, than MFIs that deliver only financial services? and (2) do microfinance 'plus' providers attain better social performance, in terms of outreach, than their specialist peers?

Using a unique sample of MFIs in 77 countries, we find that there is no evidence of microfinance 'plus' influence on financial sustainability and efficiency. The results however indicate that MFIs that provide social services have higher repayment rates and greater depth of outreach than those that do not. Thus, bundling financial services with nonfinancial further enhance the outreach mission of MFIs (Dunford 2001).

The article proceeds as follows. In Section II, we discuss the concept of microfinance 'plus' and then provide a conceptual framework on the impact of such services on performance. This precedes the hypothesis development. Section III presents the data and the specific variables used in the estimation. Section IV outlines the estimation procedure taking into account endogeneity concerns. Section V presents and discusses the empirical results while Section VI concludes the article with some remarks for practitioners and policymakers.

II. Conceptual framework: influence of microfinance 'plus' on MFI performance

The concept of microfinance 'plus'

Microfinance 'plus' services are any activities aside financial services (Goldmark 2006) targeted at improving both the welfare of poor people and their businesses. An overall understanding of the concept is relatively straightforward, but a more detailed explanation is also possible. For example, an MFI that provides savings, insurance, or money transfers together with loans is not involved in microfinance 'plus', because all its services are financial in nature. An MFI that provides informational sessions to potential clients or trains existing clients in the use of credit or the importance of repayment is not practicing microfinance 'plus', nor is an MFI that partners with another organization that provides clients with 'plus' services. Rather, a 'plus' service refers specifically to a nonfinancial service provided by the MFI itself.

Various MFIs offer a wide variety of 'plus' services, ranging from access to markets and business development services (BDS) to health provision and literacy training (Goldmark 2006; Maes and Foose 2006). In most cases, these 'plus' services are either BDS or social services (Goldmark 2006). The former aims to boost competitiveness by improving productivity, product design, service delivery or market access (Sievers and Vandenberg 2007). These services include (but not limited to) management or vocational skills trainings, technical and marketing assistance (Sievers and Vandenberg 2007; Goldmark 2006). Social services (e.g. health, nutrition, education, etc.) on the other hand are intended to raise the general welfare of clients.

Conceptual framework for the effects of microfinance 'plus'

Empirical studies on the impact of microfinance 'plus' programs on microenterprises are limited (Biosca, Lenton, and Mosley 2014). One of the earliest studies that evaluated the influence of 'plus' services in microfinance is McKernan (2002) who finds positive effect of such services on clients' profitability. Other impact studies include Smith (2002) Bjorvatn and Tungodden (2010), Karlan and Valdivia (2011) McKenzie and Woodruff (2013), among others. The findings of these and other studies range from no significant impact of microfinance 'plus' to mixed effects. However, what seem not to be taken into account is that nonfinancial services have the potential to influence not only the outcome for the clients but may also influence the performance of the MFI (Sievers and Vandenberg 2007).

Thus, this study examines the influence of microfinance 'plus' on the institution itself and not on the clients. Although no clear-cut theory exists on the link between microfinance 'plus' and performance, we can use different theories from extant literature to derive a framework that demonstrates potential outcomes of microfinance 'plus' (Figure 1). Specifically, we argue that microfinance 'plus' services may have both positive and negative outcomes on the performance of MFIs. By providing 'plus' services, an MFI could benefit from client loyalty, potential clients, high repayment rates, self-sustainability, better social outreach, and greater access to client information (see top of Figure 1). On the other hand, the microfinance 'plus' model comes with some challenges for the provider. Among other things, the MFI may suffer from increased costs, resource constraints and lower client retention. (see bottom of Figure 1).

Client loyalty

A key benefit of adding 'plus' services to microfinance is the stimulation of client loyalty (Sievers and Vandenberg 2007). If the 'plus' services improve client satisfaction, they should help increase retention rates. Such an increase in retention rate was confirmed by Karlan and Valdivia (2011) in their randomized control trial study from Peru Another example from Financiera Solucion, also shows that the institution benefits from including management training because it can better retain clients (Sievers and Vandenberg 2007) which is of course beneficial for the MFI (Reichheld 1996).

Potential clients

MFIs providing nonfinancial services have the opportunity to earn a comparative advantage in terms of attracting new clients (Khandker 2005; Mosley and Hulme 1998) especially in the increasing competition in microfinance markets (McIntosh and Wydick 2005). Attracting more clients improves the

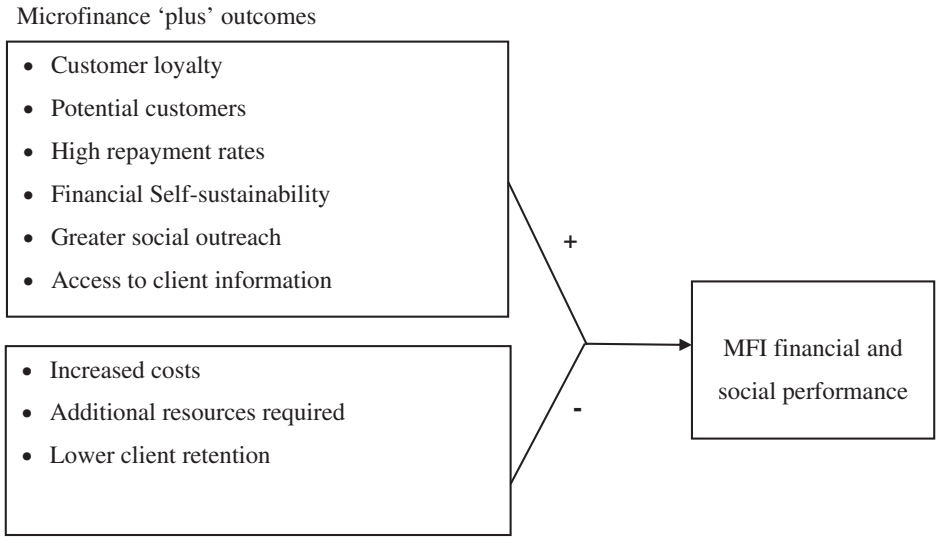

Figure 1. Effects of microfinance 'plus' on microfinance institutions' performance.

financial sustainability of the MFI because of scale economies (Hartarska, Shen, and Mersland 2013). And, obviously, having more clients could be equated with greater breadth of microfinance outreach mission.

High repayment rates

Microfinance 'plus' can help reduce the risk of default. Relevant training programs could for example increase the clients' business success while trainings on how to invest loans could help borrowers avoid using loans for consumption purpose rather than productive activities (Marconi and Mosley 2006). For instance, Karlan and Valdivia (2011) find some evidence of improved repayment rates arising from microfinance 'plus'. Giné and Mansuri (2014) however do not find evidence of improved repayment rates following clients' participation in business training programs.

Self-sustainability

Since borrowers are often limited by their lack of knowledge they often end up doing petty trade where even negative return on capital is a possible outcome (De Mel, McKenzie, and Woodruff 2008). 'Plus' services may motivate better investments with higher potential returns which could enhance loan repayment rates. Likewise, with improved human capital the clients may be able to service bigger loans which enhances the financial performance of MFIs (Hartarska, Shen, and Mersland 2013). Finally, 'plus' services might be offered for a fee resulting in a positive profit margin for the MFI (Sievers and Vandenberg 2007).

Greater social outreach

By providing 'plus' services an MFI maximizes its social mission with a wide range of social services such as health education (Dunford 2001). Although MFIs aim to reach poor people, most of them access the 'upper poor' more than the 'very poor' (Mosley 2001). In addition, pressure from governments and donors to ensure financial sustainability leads many MFIs to ignore social protection objectives and target less risky clients. Therefore, a major argument in support of the microfinance 'plus' approach is that it might enable MFIs to reach poorer and more vulnerable clients compared to the minimalist model (Halder 2003; Maes and Foose 2006). After all, other antipoverty modalities including primary health and education may be more effective than microfinance when wishing to enhance the welfare of the poorest sectors (Mosley 2001). Of course, providing 'plus' services is not devoid of potential disadvantages for the MFI as outlined in the following.

Increased costs

The microfinance 'plus' approach may come with additional operational and administrative costs for the MFI. A study of four Freedom from Hunger affiliates reveals that the direct cost of including learning sessions, related to family, health, nutrition,

business development and self-confidence, accounted for between 4.7 and 10 per cent of each MFI's operational costs (Vor Der Bruegge, Dickey, and Dunford 1999). Also, Dunford (2001) documents that combining financial and education services offers benefits for borrowers but increases the costs for the MFI.

Additional resources required

The provision of 'plus' services requires additional resources (e.g. time, money, staff, etc.) from the institution. It increases administrative burdens and may distract managers and other staff from credit administration, which could decrease repayment rates (Berger 1989). Since many MFIs are already struggling with being financially self-sustainable, adopting the maximalist model may make them worse-off. Probably, the difficulty in being self-sustainable makes some MFIs unwilling to incorporate nonfinancial services into their business models.

Lower client retention

Just as the provision of specific and relevant 'plus' services could lead to client loyalty, poor quality or irrelevance of such services could also lead to client dissatisfaction. Some evidence shows that microfinance borrowers do not consider training useful and do not retain or apply their acquired knowledge, such that time spent in training appears to be an opportunity cost for credit (Goldmark 2006). In this regards, dissatisfied clients are more likely to stop doing business with 'plus' providers (Sievers and Vandenberg 2007). On the other hand, the positive outcomes of business training on clients' business success may also result in reduced client retention because successful microenterprises may progress to the formal banking sector (Karlan and Valdivia 2011).

Based on the conceptual framework above, we formulate our testable hypotheses. Given that providers of 'plus' services benefit from client loyalty, possibility to attract new clients, and income realized from demand-driven 'plus' services, our first hypothesis is that MFIs providing 'plus' services are likely to perform financially better than specialized MFIs.

Second, there is some evidence that 'plus' services, especially BDS, may improve the creditworthiness of borrowers resulting in higher repayment rates (e.g. Karlan and Valdivia 2011). Therefore, we hypothesize that repayment rates in MFIs providing 'plus' services are higher than in specialized MFIs. Since the positive creditworthiness effect probably holds only for BDS providers, and not for SS 'plus' providers, we hypothesize that BDS 'plus' providers are more effective in improving financial performance than SS 'plus' providers.

Third, many studies (e.g. Vor Der Bruegge, Dickey, and Dunford 1999; Dunford 2001) suggest that 'plus' services come with additional costs for the institutions. Therefore, we hypothesize that 'plus' providers will experience higher costs ratios than specialists.

Finally, we hypothesize that 'plus' providers perform better socially than MFIs providing only financial services. Moreover, to distinguish which 'plus' services lead to higher social performance, we hypothesize that the social performance of SS providers is better than for BDS providers. However, we must highlight that there are potential trade-offs between social and financial performance of MFIs (Cull, Demirgüç-Kunt, and Morduch 2011) which could become evident in our results.

III. Data and variables definitions

Data

The dataset is hand collected from rating reports from the five leading rating agencies in the microfinance industry; i.e. Microrate, Microfinanza, Planet Rating, Crisil and M-CRIL. The rating reports are narratives consisting of contextual and MFI-specific information including accounting details, organizational features and benchmarks. The reports are not fully standardized and therefore differ in their emphasis and in the amount of information available. The result is that not all reports have information on all variables. When necessary, all numbers in the dataset have been annualized and dollarized using the official exchange rates from the given time. All together we used observations of 478 rated MFIs from 77 countries[1] spanning the period 1998–2012.

No dataset is perfectly representative of the microfinance field. Ours contains relatively fewer

[1]The number of MFIs per country is available from the authors upon request.

mega-sized MFIs and does not cover all small savings and credit cooperatives. The former are rated by agencies such as Moody's and Standard & Poor's; the latter are not rated. However, our use of rating reports should be relevant for studying the effects of microfinance 'plus', because MFIs that are rated have a common interest in accessing funding and increasing their sustainability. The data set includes specialists and providers of 'plus' services, so it enables meaningful comparisons. For a further description of the dataset, please see Beisland and Mersland (2012).

Variables definitions

Dependent variables

We focus on financial sustainability, efficiency and portfolio quality as measures of financial performance and outreach as a measure of the social performance of MFIs.

Financial sustainability measures

We consider the operational self-sufficiency ratio (OSS) as a main indicator of financial performance. This ratio demonstrates the ability of MFIs to be fully sustainable in the long run, in the sense that they can cover all their operating costs and maintain the value of their capital. As a robustness check, we include financial self-sufficiency (FSS) and return on assets (ROA) measures. Operational self-sufficiency, financial self-sufficiency and return on assets have been used widely to measure the financial sustainability of MFIs (Cull, Demirgüç-Kunt, and Morduch 2007; 2011; Mersland and Strøm 2009).

Efficiency measures

We use four indicators for efficiency. The *operating expense ratio* which measures the MFI's operating expenses compared with the annual average loan portfolio. A decrease in this ratio implies an increase in efficiency. Since MFIs offering small loans will look worse than MFIs offering large loans we also include the *cost per client* variable (Rosenberg 2009). Next, we employ the ratio of *credit clients per loan officer* as well as *credit clients per staff member* to evaluate how 'plus' activities influence the employment of personnel resources in the MFI.

Loan portfolio quality measures

We use two indicators of portfolio quality. First, the *portfolio at risk* beyond 30 days (PAR30) reveals the potential for future losses based on the current performance of the portfolio. Second, the *write-off ratio* measures the actual amount of loans that have been written off as unrecoverable during a given period of time, in relation to the outstanding loan portfolio. The variables have been used in previous studies (e.g. D'Espallier, Guerin, and Mersland (2011)).

Social performance measures

To evaluate social performance, we use three indicators of outreach: number of clients, average loan size and percentage of women clients. First, the *number of clients* serves as a proxy for the 'breadth of outreach' (Rosenberg 2009; Schreiner 2002). For the 'depth of outreach', i.e. economic poverty level of the clients, we apply *average loan size* and *share of female borrowers*. We recognize that average loan size and share of female borrowers are rough proxies for 'depth of outreach' (for a discussion of their shortcomings see Armendáriz and Szafarz 2011), though still the most commonly used variables to measure clients poverty level (Hermes, Lensink, and Meesters 2011; Cull, Demirgüç-Kunt, and Morduch 2009; Cull, Demirgüç-Kunt, and Morduch 2007; Ahlin, Lin, and Maio 2011; Schreiner 2002; Mersland and Strøm 2009).

Independent variables

We distinguish three types of MFI services: (1) specialized financial services only, (2) financial services and BDS and (3) financial services and social services (SS). We include *BDS* and *SS* dummies, as well as a constant in our estimates. BDS equals 1 if the MFI provides BDS and 0 otherwise. Similarly, SS equals 1 if the MFI provides social services and 0 otherwise.

Control variables

To control for macroeconomic institutional differences, we include annual percentage growth rate of gross domestic product (GDP) (based on constant 2005 U.S. dollars) (*GDP growth)* and *inflation* (Claessens, Demirguc-Kunt, and Huizinga 2001; Lensink and Hermes 2004). To further control for country influence, we include the countries' scores on the human development index (HDI). HDI is a

Table 1. Variable descriptions.

Variables	Description
Operational self-sufficiency	Operating revenue/(Financial expense + loan loss provision expense + operating expense)
Financial self-sufficiency	Adjusted operating revenue/adjusted (financial expense + loan loss provision expense + operating expense)
Return on Assets	Net operating income/average total assets
Portfolio at risk (PAR30)	Portfolio at Risk > 30 days/Gross portfolio
Write-off ratio	Write-off of loans/Average gross portfolio
Clients	Number of active clients
Average loan size	Amount issued in the period/Number of issued loans
Women	Percentage of female clients
Operating expense ratio	Operating expenses/average gross loan portfolio
Cost per client ratio	Operating expenses/number of active clients
Staff productivity	Number of active borrowers/Number of staff
Loan officer productivity	Number of active borrowers/Number of loan officers
BDS	1 if MFI provides business development services, 0 otherwise
SS	1 if MFI provides social services, 0 otherwise
Group lending	1 if MFI uses group lending methodology, 0 otherwise
MFI experience (age)	Number of years the MFI has been in operation
Credit officers	Number of credit officers an MFI has at the end of year
Assets	Total assets of the MFI
Bank	1 if a MFI is registered as a bank, 0 otherwise
Nonbank	1 if a MFI is registered as a non-financial institution, 0 otherwise
NGO	1 if a MFI is registered as non-governmental organization, 0 otherwise
Coop	1 if a MFI is registered as a cooperative, 0 otherwise
International network	1 if the MFI is member of an international network, 0 otherwise
Religious organization	1 if the MFI was initiated by an organization with a religious agenda, 0 otherwise
GDP growth	Annual GDP growth (based on constant 2005 US dollars)
HDI	Human Development Index
Inflation	Annual inflation rate

composite index that combines three dimensions of human development: education, economy and life expectancy. Finally, we include regional as well time dummies in all estimations.

To control for MFI-specific characteristics, we include *number of credit officers* since the number of field officers may be driving the results and not the 'plus' service itself. We further control for the size by including the total assets of the MFI. The lending methodology, either group based or individual has the potential to influence efficiency levels, repayment as well as outreach, thus we include *group lending* as a control variable regarding the repayment of credits (Hulme and Mosley 1996; Morduch 1999). It enhances the repayment rates due to peer pressure from other group members (Ledgerwood 1999). Furthermore, it is cost efficient to offer group loans due to scale economies. Group loans are less risky than are those to individuals because of better screening, monitoring, auditing and enforcement (Ghatak and Guinnane 1999). Thus, we expect MFIs offering group loans to have improved portfolio quality and high efficiency than those offering individual loans. Also, in line with Mersland, Randøy, and Strøm (2011) and Mersland, D'espallier, and Supphellen (2013), we control for *MFI experience* (age), whether the MFI is a member of an *international network*, and whether it was initiated by a *religious* organization. Finally, we control for the organizational form of the MFI (NGO, Bank, Cooperative, and Non-Bank financial institution, and state banks). Table 1 presents a summary of all the variables.

IV. Estimation approach

We employ panel data modelling to examine the potential effects of microfinance 'plus' on the financial and social performance of MFIs. Thus, we specify our panel model as follows:

$$y_{ijt} = \beta_0 + \beta_1 BDS_{ijt} + \beta_2 SS_{ijt} + \gamma M_{jt} + \tau MF_{ijt} + c_i + \varepsilon_{ijt} \quad (1)$$

where the dependent variable y_{ijt} is a measure of financial and social performance of the *ith* MFI located in country *jth* at time *t*, and β_0 is a constant term. BDS_{ijt} equals 1 if the *ith* MFI is a 'plus' provider that integrates BDS and 0 if it is a specialist or a 'plus' provider that integrates social services in country *j* at time *t; SS_{ijt}* equals 1 if the i^{th} MFI is a 'plus' provider of social services and 0 if it is a specialist or 'plus' provider that integrates BDS in country *j* at time *t*. Furthermore, M_{jt} is a vector of control variables describing the macroeconomic environment in country *j* at time *t; MF_{ijt}* is a vector of control variables describing the features of the i^{th} MFI in

county jt^h at time t;c_i is the MFI's individual unobserved effects; and ε_{ijt} is mean-zero errors.

First, we use the random effects model (RE) because our main variables of interest (i.e. BDS and SS) are time invariant and a fixed-effects model (FE) is impossible. However, the rejections of Hausman test null hypothesis in our results show that FE is consistent. Therefore, our second estimator is the Hausman–Taylor's (HT). This estimator distinguishes between regressors that are uncorrelated with FEs and those that are potentially correlated with them. Hausman and Taylor (1981) suggest using an economics intuition to determine which variables should be treated as potentially correlated with the FE. The model also distinguishes time-varying from time-invariant regressors. The model is as follows.

$$y_{ijt} = \beta_0 + X_{1ijt}\beta_1 + X_{2ijt}\beta_2 + W_{1ij}\gamma_1 + W_{2ij}\gamma_2 + c_i + \varepsilon_{ijt} \quad (2)$$

where the dependent variable y_{ijt} is a measure of performance of the *ith* MFI located in country j at time t; β_0 is a constant term; **X** denotes time-varying regressors: Inflation, GDP growth, MFI size, MFI experience, Credit officers, HDI, and W denote time-invariant regressors; International network, Religious organization, BDS, SS, Group lending, Coop, bank, NGO, non-bank and c_i are MFI-specific unobserved effects; and ε_{ijt} is idiosyncratic errors. Regressors with subscripts 1 are uncorrelated with c_i, whereas those with subscripts 2 are specified as correlated with c_i. All regressors are assumed uncorrelated with ε_{ijt}.[2]

The MFI's choice to integrate financial and 'plus' services depends substantially on its specific characteristics. Therefore, we treat BDS and SS as endogenous. We similarly assume that group lending is endogenous and must be instrumented. The same holds for the number of credit officers. Group lending offers an excellent platform for the delivery of 'plus' services alongside microfinance (MkNelly et al. 1996). The decision to provide individual or group lending also depends on the presence of some MFI-specific characteristics. The remaining control variables are treated as exogenous.

The validity of instruments used in the Hausman–Taylor model is tested by Sargan-Hansen test of overidentifying restrictions. The null hypothesis of this test is that the instruments are valid. If the test results reject the null hypothesis (which is the case in this study), it suggests that there are endogeneity problems other than fixed effects. This leads us to the use of Blundell and Bond (1998) system GMM (generalised method of moments) estimator which uses lagged differences of the dependent variable as instruments for equations in levels, in addition to lagged levels of dependent variable for equations in the first differences (Baltagi 2013).

V. Results and discussions

Descriptive statistics and correlations

Table 2 presents descriptive statistics of all variables used in the estimations. On average, an MFI can cover operational costs from revenue 1.13 times, indicating that the MFI is self-sustainable. However, OSS does not depict the intrinsic self-sustainability of the MFI because of the presence of subsidies and that is what FSS corrects for. The mean value for FSS is 0.95 which shows that on average, MFIs in our sample are not financially self-sustainable. Returns on assets has a mean value of 2.4 per cent. In terms of outreach, the average MFI has about 15,000 clients of which 66 per cent are women and the average loan amount disbursed (scaled by GDP per capita) is USD 1.30. With respect to loan quality, on average, about 6 per cent of the total loan portfolio is in arrears over 30 days and 1.4 per cent is written off as loan loss. Concerning efficiency dimension, an MFI has on average, operational costs of 25 per cent of gross loan portfolio, cost per client of USD 118.65, 132 borrowers per staff, and 272 borrowers per loan officer.

Furthermore, about 25 and 26 per cent of MFIs offer business development and social services, respectively. The average MFI has about: USD 11.3 million of total assets, 10 years of industry experience and 38 credit officers. Approximately, 37 per cent of the MFIs are members of an international network, 17 per cent of them (MFIs) were started by religious organizations and 19 per cent offer group loans only. In terms of legal status, about 51 per cent of the MFIs are NGOs, 29 per cent are nonbank

[2]The Hausman and Taylor (1981) estimator assumes that the exogenous variables serve as their own instruments; X_{2ijt} is instrumented by its deviation from individual means; and W_{2ij} is instrumented by $\overline{X_{1ij}}$.

Table 2. Descriptive statistics.

Variable	Mean	Std. Dev.	Min	Max
Operational self-sufficiency	1.128241	0.3678306	0.075	2.96
Financial self-sufficiency	0.9484163	0.3047077	0.063	3.469
Return on assets	0.0240719	0.0858322	−0.373	0.373
Number of clients	15,008.51	18,951.42	24	98,639
Average loan size	1.296353	2.826229	0.027	35.72
Percentage of women	0.6646034	0.2601223	0.000	1.000
Portfolio at risk	0.0601583	0.0689986	0.001	0.39
Write-off ratio	0.0135395	0.0196164	0.000	0.099
Write-off ratio (log)	−5.053952	1.616904	−6.907	0.948
Operating expense ratio	0.2458689	0.1269165	0.016	0.6
Cost per client	118.648	107.004	0.242	574.99
Borrowers per staff member	132.1854	111.304	1	1893
Borrowers per loan officer	272.4617	159.7607	3	989
Assets	11,301,397.26	24,831,411.8	19,288	279,350,816
MFI age	9.782793	5.828356	0	29
Group lending	0.1923767	0.3942558	0	1
Credit officers	38.10859	39.05367	1	199
International network	0.3729858	0.483713	0	1
Religious organization	0.1685289	0.3744224	0	1
BDS	0.2524664	0.4345248	0	1
SS	0.2699552	0.4440358	0	1
Bank	0.0483496	0.2145538	0	1
Nonbank	0.2924221	0.454981	0	1
NGO	0.5099954	0.5000163	0	1
Coop	0.1338912	0.3406146	0	1
GDP growth	5.206064	3.175086	−14.149	17.33
Inflation	0.0611677	0.0487948	−0.185	0.287
HDI	0.6060426	0.1358599	0.058	0.806

financial institutions, 13 per cent are cooperatives and 5 per cent are banks. Finally, the mean values for GDP growth, inflation and HDI are 5.2 per cent, 6.1 per cent and 0.606, respectively.[3]

The link between microfinance 'plus' and MFI performance: random effects

First, we present the results of the RE estimator. Table 3 presents estimates of the effects of microfinance 'plus' on financial sustainability. The statistics show that we pass the Hausman's test in models (1) and (2) as the p-values are greater than 0.05 but fail in model (3) because the p-value is less than 0.05. The Wald's chi-squared test is significant showing that our models are correctly specified, and our regressors explain up to 27 per cent of the variance of the outcome variables (model 2) and as low as 17 per cent (model 3). The results show that BDS and SS are statistically insignificant suggesting that they have no effect on the financial sustainability of MFIs.

As for the control variables we observe that HDI is negatively associated with the FSS while MFI size significantly enhances financial sustainability. As expected, inflation reduces financial self-sustainability of MFIs because it increases their cost of production. The results further indicate that MFIs with large number of loan officers tend to reduce financial sustainability in terms of OSS, FSS and ROA. Similarly, MFIs with religious orientation have lower financial sustainability compared to those without, while group lending is associated with increased ROA. Finally we observe than any ownership type is better than being state owned when it comes to financial sustainability. Finally, group lending is associated with increased returns on assets.

Table 4 also presents RE results on the link between microfinance 'plus' and efficiency. Like in Table 3, BDS and SS are not significant and thus, have no effect on MFIs' efficiency.[4]

Next, we provide the RE estimates on the link between microfinance 'plus' and loan quality. Table 5 lists the results and it is clearly shown that BDS does not affect loan quality in terms of portfolio at risk and write-offs but SS has positive outcome on the former suggesting that providing social services

[3]Testing (unreported) for multicollinearity problems indicates that none of the correlation values are above cut-off point of 0.90 (Hair et al. 2010). The only correlation close to the cut-off point is that of BDS and SS (0.84) indicating that if MFIs offer 'plus' services they often offer both BDS and SS.
[4]Because of space constraints we do not comment on the control variables included in Tables 4, 5 and 6.

Table 3. The link between microfinance 'plus' and financial sustainability.

Variables	(1) OSS	(2) FSS	(3) ROA
BDS	0.0089	−0.0214	−0.0067
	(0.0333)	(0.0270)	(0.0095)
SS	−0.0060	0.0030	0.0072
	(0.0292)	(0.0249)	(0.0097)
HDI	−0.2367	−0.2811**	−0.0170
	(0.1769)	(0.1408)	(0.0642)
GDP growth	0.0023	0.0057*	0.0013
	(0.0046)	(0.0035)	(0.0010)
MFI size	0.1342***	0.1075***	0.0248***
	(0.0207)	(0.0159)	(0.0038)
MFI experience	−0.0069	−0.0072	0.0005
	(0.0047)	(0.0044)	(0.0007)
Inflation	−0.1548	−0.7004***	0.0737
	(0.2662)	(0.2398)	(0.0677)
Credit officers	−0.0026***	−0.0017***	−0.0004***
	(0.0007)	(0.0005)	(0.0001)
International network	−0.0399	0.0109	0.0003
	(0.0471)	(0.0358)	(0.0086)
Religious organization	−0.0463	−0.0837*	−0.0193*
	(0.0534)	(0.0430)	(0.0100)
NGO	0.3541	0.3995***	0.0346
	(0.3560)	(0.1318)	(0.0457)
Non-bank	0.2093	0.3175**	0.0170
	(0.3557)	(0.1261)	(0.0459)
Bank	0.3720	0.3933***	0.0385
	(0.3645)	(0.1462)	(0.0473)
Coop	0.3281	0.4057***	0.0306
	(0.3565)	(0.1368)	(0.0466)
Group lending	0.0447	0.0333	0.0187***
	(0.0329)	(0.0264)	(0.0065)
Constant	−0.8750*	−0.7562***	−0.3634***
	(0.4797)	(0.2712)	(0.0853)
Time dummies	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes
Observations	628	654	1,104
Number of MFIs	196	211	317
Hausman test (p-value)	0.7758	0.4205	0.0016
R-squared (overall)	0.2071	0.2658	0.1688
Chi-squared	142.12***	306.36***	133.38***

This table lists Random effects results of the link between microfinance 'plus' and financial sustainability of MFIs. *OSS* is operational self-sustainability and measures the ability of MFI to cover its operational costs from revenue, *FSS* is financial self-sustainability and measures the ability of MFI to cover operational costs from revenue without subsidies and *ROA* is returns on assets. BDS = 1 if MFI provides business development services, 0 = otherwise, and SS = 1 if MFI provides social services, 0 = otherwise. *MFI size* is the natural logarithm of total assets, *MFI experience* is the number of years the MFI has been in operation, and *Credit officers* is the number of credit officers at the end of the year. *Group lending* = 1 if MFI offers group loans, 0 = otherwise, *International network* = 1 if MFI is a member of international network, 0 = otherwise, *Religious organization* = 1 if MFI was started by a religious organization, 0 = otherwise. *NGO* = 1 if the MFI is registered as a nongovernmental organization, 0 = otherwise, Non-bank = 1 if the MFI is registered as a non-bank financial institution, 0 = otherwise, *Bank* = 1 if the MFI is registered as a bank, 0 = otherwise, and *Coop* = 1 if the MFI is registered as a cooperative, 0 = otherwise. *GDP growth* is the real annual Gross Domestic Product growth rate, *Inflation* is annual producer price index, and *HDI* is human development index. In parentheses are robust standard errors.

*, **, and *** denote statistical significance at the 10%, 5%, 1% respectively.

enhances repayment rates. Our interpretation is that the provision of social services enhances clients' loyalty and therefore also their repayment of loans. Thus, clients find the SS services relevant. The finding that MFIs do not improve repayment rates over time is not necessarily surprising since more experienced MFIs can allow a larger share of their clients to be in arrears.

Table 6 presents the last set of RE estimates on the link between microfinance 'plus' and social performance. SS is significantly and positively related to women suggesting that the provision of social services maximizes MFIs' outreach efforts (Dunford 2001). BDS on the other hand is insignificant and hence has no effect on social performance.

The link between microfinance 'plus' and MFI performance: fixed effects present

The results of the Hausman's specification test presented in Table 3–6 suggest that there are fixed effects as we did not pass the test in some of the models (e.g. 3, 4, 5). To account for fixed effects, we use the HT estimator which uses exogenous regressors as instruments. The results for the financial sustainability are presented in Table 7 while the results for the efficiency, repayment and outreach effects are available from authors upon request. We pass the Sargan-Hansen test with p-values greater 0.05 in all models (Table 7) suggesting that our instruments are valid. We however fail the test especially in three models for efficiency (unreported). Generally, the results in the HT models mirror those of the random effects models reported in Table 3–6 – the provision of 'plus' services does not have significant effect on the MFI's performance. However, the rejection of the null hypothesis of valid instruments suggests that the results may be biased; there are real endogeneity problems aside fixed effects. Next, we employ the system GMM to account for potential endogeneity issues.

The link between microfinance 'plus' and MFI performance: endogeneity present

Table 8 reports system GMM results on the link between microfinance 'plus' and financial sustainability of MFIs. The statistics show that there is first-order serial correlation as the p-values of AR (1) are all less than 0.05 but no second-order serial correlation (p-values >0.05). We pass the Hansen's test of overidentifying restrictions indicating joint validity of instruments set (all p-values >0.05). All

Table 4. The link between microfinance 'plus' and MFI efficiency.

Variables	(4) Operating expenses	(5) Cost per client	(6) Staff productivity	(7) Credit officer productivity
BDS	0.0046	−11.1686	−6.4027	−13.6241
	(0.0092)	(8.2730)	(4.6786)	(9.7459)
SS	−0.0006	7.3049	1.8171	1.3546
	(0.0102)	(7.2725)	(4.6595)	(10.1066)
HDI	−0.1051	100.1630	84.3848*	61.4425
	(0.0999)	(76.6951)	(44.5177)	(117.7688)
GDP growth	0.0010	−1.8255**	0.6072	0.8140
	(0.0011)	(0.7907)	(0.6034)	(1.3391)
MFI size	−0.0551***	12.6214*	16.3686***	39.5467***
	(0.0066)	(6.7782)	(3.6843)	(7.1674)
MFI experience	−0.0009	0.2095	0.7911	1.9210
	(0.0015)	(1.2514)	(0.8511)	(1.7786)
Inflation	−0.0367	−6.5753	−82.5389**	−165.1948*
	(0.0876)	(62.6171)	(41.7542)	(86.9073)
Credit officers	0.0006***	−0.3000**	−0.2736**	−1.2017***
	(0.0002)	(0.1443)	(0.1184)	(0.2305)
International network	0.0463***	−8.9624	21.2268**	58.0469***
	(0.0147)	(10.9173)	(9.9890)	(19.0053)
Religious organization	−0.0235	−6.6840	26.6914*	17.3264
	(0.0167)	(13.1452)	(15.0120)	(23.1394)
NGO	−0.0829**	4.1400	−31.1030	−28.3443
	(0.0382)	(37.1670)	(18.9918)	(37.8816)
Non-bank	−0.0907**	31.7750	−40.0253**	−39.4110
	(0.0373)	(36.5450)	(18.8842)	(35.8501)
Bank	−0.0599	−16.4869	−76.2367**	−19.1276
	(0.0449)	(47.5149)	(30.9760)	(57.5899)
Coop	−0.1948***	−29.9296	−76.8696***	−69.6188
	(0.0416)	(39.1691)	(22.6003)	(42.7219)
Group lending	−0.0137**	−2.0071	0.4042	8.5278
	(0.0067)	(6.0482)	(3.9206)	(8.6970)
Constant	1.2140***	−152.1842	−135.6015**	−334.4640**
	(0.1207)	(111.7720)	(63.4283)	(132.5162)
Time dummies	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes
Observations	994	960	1,123	1,106
Number of MFIs	295	278	315	313
Hausman test (p-value)	0.0001	0.0002	0.9036	1.0000
R-squared (overall)	0.3410	0.2724	0.1924	0.2093
Chi-squared	334.69***	266.08***	172.43***	154.27***

This table lists Random effects estimates of the link between microfinance 'plus' and MFI efficiency. *Operating expense* is total operating expenses as a percentage of average gross loan portfolio, *Cost per client* is total operating expenses as a percentage of number of active clients, *Staff productivity* is the number of active borrowers per staff, and *Credit officer productivity* is the number of active borrowers per credit officer. Regressors are defined previously. In parentheses are the robust standard errors.

*, **, and *** denote statistical significance at the 10%, 5%, 1%, respectively.

the lags of the dependent variables are statistically significant at least at the 5 per cent level. Once again, neither BDS nor SS are significantly associated with the financial sustainability confirming the results previously reported. Likewise, we find that the GMM regressions do not result in significant findings for the effect of BDS or SS on the efficiency, repayment or social outreach of the MFI (unreported).

A concern with the system GMM estimates relates primarily to our time-invariant regressors (i.e. BDS and SS) as their lagged values cannot be used as instruments because their lagged first differences are zero. This leaves us with first differences of time-varying variables which unfortunately cannot be valid instruments either because they suffer from Nickell's bias (Nickell 1981) and do not also correlate sufficiently with the observed BDS and SS. Thus, the estimates of the system GMM are also problematic. Therefore, the random effects estimates are preferred because of the nature of our variables of interests which get wiped out if the fixed-effects model is used and their estimation in the HT model is not appropriate due to invalidity of instruments. In any case, results from the three estimators (RE, HT and system GMM) suggest that microfinance 'plus' do not influence overall performance of MFIs. Only in few cases the RE estimates provide some evidence of improved loan quality and outreach and

Table 5. The link between microfinance 'plus' and loan quality.

Variables	(8) PAR30	(9) Write-off
BDS	0.0038	0.1091
	(0.0054)	(0.2420)
SS	−0.0110**	−0.3611
	(0.0055)	(0.2361)
HDI	0.0330	−0.8982
	(0.0504)	(0.9150)
GDP growth	−0.0023***	−0.0244
	(0.0006)	(0.0206)
MFI size	−0.0055	0.0935
	(0.0033)	(0.0701)
MFI experience	0.0023***	0.0169
	(0.0007)	(0.0159)
Inflation	−0.0628	1.4634
	(0.0431)	(1.1286)
Credit officers	0.0001	−0.0008
	(0.0001)	(0.0021)
International network	−0.0234***	−0.1109
	(0.0073)	(0.1565)
Religious organization	0.0082	0.1442
	(0.0083)	(0.1959)
NGO	0.0177	0.5172
	(0.0332)	(0.5032)
Non-bank	0.0221	0.2957
	(0.0333)	(0.5000)
Bank	0.0054	0.0621
	(0.0357)	(0.5943)
Coop	0.0327	−0.0124
	(0.0347)	(0.5327)
Group lending	0.0023	0.2515*
	(0.0044)	(0.1404)
Constant	0.0939	−7.0021***
	(0.0698)	(1.2779)
Time dummies	Yes	Yes
Regional dummies	Yes	Yes
Observations	1,001	1,087
Number of MFIs	298	301
Hausman test (p-value)	chi2 < 0	0.4105
R-squared (overall)	0.1640	0.0913
Chi-squared	117.50***	228.54***

This table lists Random effects estimates of the link between microfinance 'plus' and loan portfolio quality of MFIs. *PaR30* is nonperforming loans over 30 days, and *Write-off* is natural logarithm of the proportion of loans portfolio that have been written off as loan loss. Regressors are defined previously. In parentheses are robust standard errors.

*, **, and *** denote statistical significance at the 10%, 5%, 1%, respectively.

Table 6. The link between microfinance 'plus' and social performance.

Variables	(10) Clients	(11) Average loan size	(12) Women
BDS	−602.9183	−0.0212	−0.0098
	(777.4759)	(0.1556)	(0.0443)
SS	597.1599	0.0755	0.0899**
	(699.2822)	(0.1505)	(0.0431)
HDI	3,861.4355	−1.6081	0.4286**
	(5,486.8614)	(1.4455)	(0.2067)
GDP growth	110.2542	−0.0238	0.0143**
	(83.0698)	(0.0348)	(0.0065)
MFI size	1,933.2793***	0.1736*	−0.0615***
	(516.9265)	(0.1006)	(0.0202)
MFI experience	142.4659	−0.0321	0.0038
	(115.0366)	(0.0349)	(0.0043)
Inflation	−5,247.5854	−2.1151	−0.5878*
	(6,821.1764)	(2.8034)	(0.3159)
Credit officers	222.4752***	−0.0022	0.0009**
	(21.2049)	(0.0038)	(0.0004)
International network	2,452.8597*	−0.3416	0.1434***
	(1,290.6792)	(0.4111)	(0.0401)
Religious organization	−1,606.7106	0.3312	−0.0466
	(1,166.1896)	(0.5857)	(0.0602)
NGO	−2,557.9972	0.7308**	−0.0822
	(2,521.8525)	(0.3527)	(0.0728)
Non-bank	−1,930.1692	1.6658**	−0.1872**
	(2,504.2784)	(0.6494)	(0.0806)
Bank	−2,524.7437	2.3336**	−0.2099**
	(3,992.8307)	(1.0651)	(0.1055)
Coop	3,843.7740	1.3902**	−0.2162*
	(3,551.6547)	(0.5984)	(0.1105)
Group lending	82.3783	−0.0524	0.0214
	(525.3579)	(0.2298)	(0.0268)
Constant	−32,712.4700***	−1.0653	1.2537***
	(8,845.9372)	(1.9017)	(0.3633)
Time dummies	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes
Observations	976	645	176
Number of MFIs	277	201	139
Hausman test (p-value)	0.2034	0.0000	0.3599
R-squared (overall)	0.6376	0.1521	0.4716
Chi-squared	827.32***	66.19***	229.78***

This table lists Random effects estimates of the link between microfinance 'plus' and social performance of MFIs. *Clients* is the number of active clients an MFI has, *Average loan size* is the amount of loan disbursed per borrower scaled by gross domestic product per capita, and *women* is a percentage of female clients. Regressors are defined previously. In parentheses are robust standard errors.

*, **, and *** denote statistical significance at the 10%, 5%, 1%, respectively.

thus support our hypotheses on these dimensions of performance.

VI. Conclusion

This article set out to examine the potential impact of microfinance 'plus' on the financial and social performance of MFIs. Impact studies of nonfinancial services have always used the clients as their unit of analysis. In contrast, this article focuses on the providers of 'plus' services. Using a unique global sample of MFIs and an arsenal of estimation methods, we find insignificant impact of BDS on MFIs' financial and social performance. Furthermore, we find only meagre evidence of improved loan quality and outreach with the provision of social services. Specifically, providing social services comes with lower portfolio at risk and more women clients though these findings are not stable across estimation methods.

Thus, this article provides a first-hand information on the outcome of microfinance 'plus' from the perspective of the providers. Overall, it appears there is no performance disparity for those MFIs providing 'plus' services and those that do not. Perhaps, the benefits of microfinance 'plus' might have been

Table 7. The link between microfinance 'plus' and financial sustainability.

Variables	(13) OSS	(14) FSS	(15) ROA
BDS	−0.0114	−0.0302	−0.0099
	(0.0514)	(0.0339)	(0.0106)
SS	−0.0023	0.0017	0.0066
	(0.0492)	(0.0326)	(0.0104)
HDI	−0.0794	−0.0837	0.0598
	(0.2881)	(0.2324)	(0.0592)
GDP growth	0.0030	0.0064*	0.0014
	(0.0050)	(0.0034)	(0.0010)
MFI size	0.1507***	0.1551***	0.0350***
	(0.0260)	(0.0191)	(0.0048)
MFI experience	−0.0090	−0.0067	0.0003
	(0.0056)	(0.0056)	(0.0009)
Inflation	−0.1246	−0.6438***	0.0731
	(0.3045)	(0.2235)	(0.0591)
International network	−0.0485	−0.0112	0.0007
	(0.0563)	(0.0573)	(0.0104)
NGO	0.5578**	0.5296***	0.0591*
	(0.2845)	(0.1549)	(0.0355)
Non-bank	0.4077	0.4339***	0.0363
	(0.2826)	(0.1422)	(0.0348)
Credit officers	−0.0025***	−0.0024***	−0.0007***
	(0.0009)	(0.0006)	(0.0002)
Group lending	0.0611	0.0429*	0.0252***
	(0.0386)	(0.0242)	(0.0074)
Religious organization	−0.0386	−0.0808	−0.0208
	(0.0630)	(0.0653)	(0.0129)
Bank	0.5090*	0.4489**	0.0549
	(0.2963)	(0.1986)	(0.0402)
Coop	0.5225*	0.5182***	0.0460
	(0.2833)	(0.1609)	(0.0370)
Constant	−1.4732**	−1.7077***	−0.5844***
	(0.6083)	(0.3850)	(0.1012)
Time dummies	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes
Observations	628	654	1,104
Number of MFIs	196	211	317
Chi-squared	106.24***	262.62***	199.78***
Sagran-Hansen (P-value)	0.6688	0.1783	0.2927

This table presents estimates of the Hausman-Taylor model. Our endogenous regressors are credit officers, BDS, SS, and Group lending, of which credit officers is time varying and the rest are time-invariant. The remaining regressors are considered exogenous. Time varying exogenous variables are HDI, GDP growth, MFI size, MFI experience and inflation. The remaining exogenous regressors are time invariant. Variables are defined in Table 2. Standard errors in parentheses.*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 8. The link between microfinance 'plus' and financial sustainability.

Variables	(16) OSS	(17) FSS	(18) ROA
OSS_{t-1}	0.4490**		
	(0.1794)		
FSS_{t-1}		0.4881**	
		(0.2207)	
ROA_{t-1}			0.5066***
			(0.0875)
BDS	0.1630	0.0109	0.0009
	(0.1221)	(0.1047)	(0.0132)
SS	−0.0864	0.0743	0.0011
	(0.1477)	(0.1745)	(0.0131)
HDI	−0.2846	0.3117	0.0236
	(0.2883)	(0.6601)	(0.0646)
GDP growth	−0.0007	0.0128	0.0012
	(0.0060)	(0.0124)	(0.0008)
MFI size	0.0468*	0.0703	0.0025
	(0.0266)	(0.0725)	(0.0031)
MFI experience	0.0019	−0.0201	−0.0009*
	(0.0067)	(0.0205)	(0.0005)
Inflation	0.1433	−0.1500	0.0550
	(0.5422)	(0.6218)	(0.0749)
Credit officers	−0.0010	−0.0007	−0.0000
	(0.0008)	(0.0013)	(0.0001)
International network	0.0518	−0.0541	0.0036
	(0.0593)	(0.1124)	(0.0045)
Religious organization	0.0003	−0.0590	0.0085
	(0.0464)	(0.0993)	(0.0075)
NGO	−4.5378	4.1261	−0.1938
	(5.3656)	(6.0511)	(0.3040)
Non-bank	−4.7924	4.3736	−0.2106
	(5.4818)	(6.3937)	(0.3170)
Bank	−4.4579	4.0063	−0.1954
	(5.3021)	(5.9865)	(0.3022)
Coop	−4.5834	4.0857	−0.2145
	(5.3237)	(6.0198)	(0.3056)
Group lending	−0.0672	−0.0698	−0.0046
	(0.0678)	(0.0642)	(0.0120)
Constant	4.7866	−4.7093	0.1909
	(5.4758)	(7.0737)	(0.3576)
Time dummies	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes
Observations	466	472	844
Number of MFIs	187	201	305
Number of instruments	41	41	43
Chi-squared	229.83***	210.41***	321.87***
AR(1) test (P-value)	0.045	0.033	0.000
AR(2) test (P-value)	0.412	0.296	0.792
Hansen test (P-value)	0.800	0.284	0.176

This table lists system GMM (generalized methods of moments) results of the link between microfinance 'plus' and financial sustainability of MFIs. *OSS* is operational self-sustainability and measures the ability of MFI to cover its operational costs from revenue, *FSS* is financial self-sustainability and measures the ability of MFI to cover operational costs from revenue without subsidies and *ROA* is returns on assets. Regressors are defined previously. *AR (1)* and *AR (2)* are tests for first-and second-order serial correlation in the first-differenced residuals, under the null hypothesis of no serial correlation. The *Hansen test* of over-identification is under the null hypothesis that all instruments are valid. In specifying the two-step System GMM model, we use lags of: dependent variables, BDS and SS as GMM instruments allowing the default lags limits in Stata. 'By default, gmmstyle() generates the instruments appropriate for predetermined variables: lags 1 and earlier of the instrumenting variable for the transformed equation and, for system GMM, lag 0 of the instrumenting variable in differences for the levels equation' (Roodman 2009, 124). The exogenous regressors are also standard instrumental variables, and the 'collapse' option is used to limit instrument proliferation. In parentheses are robust standard errors.

*, **, and *** denote statistical significance at the 10%, 5%, 1%, respectively.

neutralised by the disadvantages associated with it, hence, leaving a negligible net impact on MIFs' performance.

The no-results reported in this study actually offers important policy lessons for MFIs. With this information, microfinance practitioners are informed that, adopting the maximalist approach causes no harm on their overall financial and social performance. Thus, if the 'plus' services are of value for the customers the provision of such does not harm the performance of the MFI. We do however recognize that the design and the cost structure of the 'plus' service does of course

influence the outcome for the client as well as the MFI. Our study only shows that MFIs offering 'plus' services today have on average been able to design these in such a way that they do not harm the performance of the MFIs. We thus recommend future studies to look deeper into how the design and cost structure of 'plus' services have an influence on the MFI performance. Likewise, an interesting area for future researchers could be an investigation of how 'smart subsidies' (Morduch 2007) might account for the additional costs of providing 'plus' services, as well as how coordinated nonfinancial services provided by non-MFIs, in cooperation with MFIs, might influence MFI performance. Finally, like Berge, Bjorvatn, and Tungodden (2014), studies are much warranted on whether or not different 'plus' services actually enhance clients' impacts.

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